



AIR WAR COLLEGE

RESEARCH REPORT

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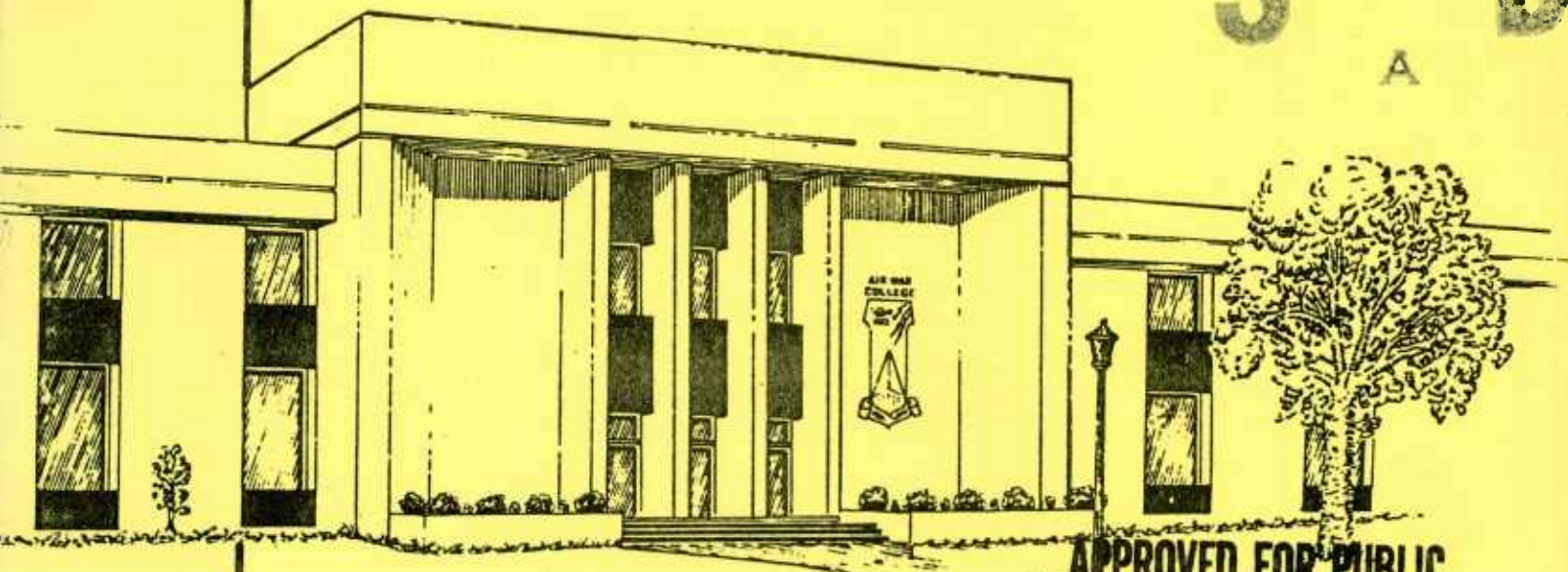
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NUTRITIONAL WAYS, MEANS AND MYTHS:

AIR WAR COLLEGE CLASS 1985

By LIEUTENANT COLONEL PATRICIA A. PORTER

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AIR UNIVERSITY
UNITED STATES AIR FORCE
MAXWELL AIR FORCE BASE, ALABAMA

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AIR UNIVERSITY

NUTRITIONAL WAYS, MEANS AND MYTHS:
AIR WAR COLLEGE CLASS 1985

by

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A RESEARCH REPORT SUBMITTED TO THE FACULTY

IN

FULFILLMENT OF THE RESEARCH

REQUIREMENT

Research Advisor: Lieutenant Colonel Robert F. Fowler

MAXWELL AIR FORCE BASE, ALABAMA

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DISCLAIMER-ABSTAINER

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AIR WAR COLLEGE RESEARCH REPORT ABSTRACT

TITLE: Nutritional Ways, Means and Myths: Air War College 1985

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Focus on the results of the nutritional aspect of the Personal Lifestyle Improvement questionnaire pinpoints discrepancies between what is perceived as a sound diet and what is actually being consumed. The intent of this report is to provide the Air War College Class of 1985 as well as future classes the basic elements of sound nutrition along with methods of alteration. The underlying drive is to urge the Air War College population to evaluate their nutritional habits and then adapt changes or modifications where needed. The end result will be improved cardiovascular health. The author specifically addresses salt, vitamins, caffeine, fat, cholesterol, breakfast/fasting, lunch, and dinner - - eating out and fast foods.

BIOGRAPHICAL SKETCH

Lieutenant Colonel Patricia A. Porter (B.S.N., St. Louis University and M.S. Chapman College) has been interested in health and fitness. As an R.N. and fellow consumer, she became intrigued with the nutritional habits of the Air War College Class of 1985. Prior to her assignment at Air War College, she was Assistant Chairman, Department of Nursing, Education at David Grant Medical Center, Travis Air Force Base. Other assignments have included: Education Coordinator at Vandenberg Air Force Base; Flight Nurse/Flight Clinical Coordinator at Scott Air Force Base; Flight Nurse Exchange Program at Summerside, Prince Edward Island and Trenton, Ontario, Canada; and medical-surgical staff nurse at F.E. Warren Air Force Base, Grand Forks Air Force Base, and Tachikawa Air Force Base, Japan. Lieutenant Colonel Porter is a graduate of the Air War College, class of 1985.

CHAPTER I

NUTRITIONAL WAYS, MEANS, AND MYTHS: AIR WAR COLLEGE 1985

This nutritional assessment is prepared for you, the Air War College Class of 1985 as well as future classes. The Health Assessment and Fitness Program is designed to increase your awareness of personal cardiovascular disease risk factors and to motivate you toward appropriate lifestyle changes. As an R.N. and fellow consumer, I became intrigued with how our class viewed their nutritional habits. As a result, I felt compelled to provide an in-depth guide in the nutritional problem areas that were reported in the lifestyle surveys completed by our class. This information is intended to benefit not only the Class of 1985 but future classes as well. However, the benefits to be reaped are strictly up to you and are in your hands. Remember, if you exercise for your health, you should eat for your health!

Roughly 50 percent of deaths in the U.S. are caused by some form of cardiovascular disease, most commonly heart attacks and strokes. It is strongly believed that an unhealthy diet can contribute to the development of heart disease. From the self-report on the Personal Lifestyle Improvement Questionnaire, 61 percent of Air War College Class felt their diet was largely nutritionally sound. Only 9 percent felt their diet was largely or definitely nutritionally deficient. In light of the soundness of your nutrition let us review some of the data obtained from the questionnaire regarding nutrition.

When asked to prioritize 10 lifestyle goals, most of the Air War College Class of 1985 placed nutrition as fifth, indicating, while not first on our mind, diet is definitely a matter of interest. This is consistent with the fact that over 50 percent of us feel that our diet is nutritionally sound. However, look closer at the following chart which verifies discrepancies between what is perceived as sound and what is actually being consumed.

Nutrition Item	Total Population Use	Various Responses			
Salt	52%	26% usually add	17% always add	9% add before tasting	
Caffeine	90%	15% 1-2 cups a day	35% 3-4 cups a day	25% 5-6 cups a day	15% > 7 cups a day
Vitamins and Minerals	39%	26% daily use	4% usually	9% occasionally	
Breakfast (seldom or never eat)	57%	44% seldom	9% occasionally	4% never	
Eat out weekly	86%	45% 1-2 meals	12% 3-4 meals	29% > 5 meals	
Consume Beef, Pork, Lamb > 4 times/week	64%	36% 3-4 times	28% 5-6 times	20% > 7 times	
Regular Salad Dressing > 4 times/week	40%	36% 3-5 times	4% 6-8 times		
Gravy or heavy sauces > 2 times/week	50%	42% 1-2 times	8% 3-4 times		

Nutrition Item	Total Population Use	Various Responses			
Bacon, sausage, cured ham, hot dogs, lunch/canned meats > 3 times/week	56%	34% 1-2 times	21% 6-8 times		
Cheese > 3 times/week	99%	54% 2 or less times	33% 3-5 times	4% 6-8 times	8% > 9 times

You may be asking yourself "so what?" But reflect for a minute as to how you would respond to the following. Does a taste of guilt accompany your coffee-break-breakfast, vending machine lunch and eat-on-the-run dinner? If your answer is "yes" then you need to evaluate your nutritional habits. After all, "no time" is no excuse for a less than healthful diet. Good nutrition today is cheaper and easier to cope with than tomorrow's ailments.

Remember the Air War College age group is at increased risk for cardiovascular disease. The one problem with cardiovascular disease is that the process may begin at an early age. Significant disease may be present before the age of 20 in some individuals. Long before function of the heart muscle is impaired there exists an asymptomatic period. It is during this asymptomatic period that risk factor modification (diet being one of them) may halt or even reverse the process.

Now, if you are not really concerned with this potential for cardiovascular disease and you feel your nutritional habits are sound, read no further. On the other hand, if you are concerned about a specific area and would like to begin some modified changes read on.

The purpose of this paper is to provide you with the basic elements of sound nutrition and to provide you methods of alteration in their use. The underlying drive is to urge you to evaluate your nutritional habits and then adapt changes or modifications if needed. The overall results will be your responsibility since you have to take the action for change. However, your benefits will be improved cardiovascular health.

This paper will address the specific problems identified from the Personal Lifestyle Improvement Questionnaire which are: salt, vitamins, caffeine, fat, cholesterol, breakfast/fasting, lunch, and dinner - - eating out/fast foods.

CHAPTER II

SALT HABIT - - SHAKE IT OR NOT

Do you salt your food before you taste it? How many of you munch on salted peanuts, pretzels, popcorn and then finish off the salt in the bottom of the can, box, or bag to be sure you have gotten it all? Do you have a problem?

Salt is a combination of sodium and chloride. Sodium is found mainly in blood plasma and in the fluids outside the body cells, helping to maintain normal water balance inside and outside the cells. Chloride is a part of hydrochloric acid, which is found in quite high concentration in the gastric juice and is very important in the digestion of food in the stomach.

The recommended daily amount of sodium is approximately two grams or one teaspoon. Most of us pour entirely too much salt on our foods, and when we don't it is done for us in prepared foods. Salt is often cited as a cause of high blood pressure. In addition, excessive amounts of sodium contribute to heart attacks and strokes.

The average American consumes between 10 to 12 grams of salt daily. Since salt is about 40 percent sodium, this is equal to between four and five grams of sodium daily. The amazing factor is that even when you choose foods that are not salty and add no table salt, you may still consume two to three grams of sodium. Most foods naturally contain sodium. Such examples would be grains, vegetables, dairy products, fish and meats. So you ask how much is a gram of sodium? One level teaspoon of salt equals 2.3 grams of sodium.¹

When examining food labels be sure to focus on the word sodium. The ingredients rank on the label will give you an idea of its relative amount in the food. For example, the first ingredient is the most abundant, second is second most abundant and so on. Do not be fooled by other words, such as disodium phosphate or monosodium glutamate. They are just as bad.²

What you need to do is to assess your daily shaker habits. Some steps that you can take to reduce your salt intake are:

1. Do not put salt shaker on the table.
2. Use half amount of salt when cooking and baking.
3. Prepare foods using other flavorings such as: pepper, wine, sherry, herbs, spices, onion, vinegar, vanilla, or lemon.
4. Avoid convenience foods such as TV dinners, packaged meals, or canned soups.
5. Buy foods in their natural state.
6. Limit your intake of: salted fish, salted nuts, potato chips, pretzels, pickles, olives, sauerkraut, luncheon meats, and soy sauce.

Below is a list of common foods high in sodium (Remember, the recommended maximum daily intake is two grams or 2000 mg.):

	mg. sodium
Processed meats:	
1 oz. raw bacon	110
1 oz. canned ham	280
1 oz. bologna	360
1-2 oz. hot dog	550
1 oz. corned beef	265
1 sausage link	235
1 oz. roast beef	25
1 oz. roast pork	25
Cheese:	
1 oz. cheddar	220
½ c. cottage	250
1 oz. American	320
Processed foods:	
½ c. vegetables, canned	200
½ c. tomato juice	250
1 cube bouillon	950
1 turkey pot pie	1100
1 chicken TV dinner	1100
1 c. spaghetti, canned	1220
½ can vegetable soup	1250
1 c. sauerkraut	1755

Processed Foods continued:

1 meatloaf TV dinner	1545
1 Mexican TV dinner	1740
1 fried chicken TV dinner	1235
1 c. chili con carne (with beans)	1110

Condiments:

1 tsp. mustard	65
1 tbsp. catsup	155
1 tbsp. French dressing	200
1 packet (¼ tsp.) salt	500
1 tbsp. soy sauce	860
1 lg. green olive	90
1 lg. black olive	30
1 med. dill or sour pickle	1000
1 packet pickle relish	75

Snacks:

¼ c. peanuts (salted)	150
10 potato chips	200
2 Hostess Twinkies	400
1 pretzel 7" rod	235

Source: J. Pennington and H. Church. Bowes and Church's Food Values of Portions Commonly Used. Harper and Row Publishers. New York. 1980.

Your next concern may be exercise and sweating. Is it necessary to replace salt loss? No, because sweat has proportionately less sodium when compared to your blood and intracellular fluid. The reason why:

	mg. sodium
one liter sweat	0.9-1.4
avg. 150 lb. body	90
adeq. dietary intake (if no heavy sweating)	2
avg. American diet	4-12

Source: Clark, Nancy. The Athlete's Kitchen. New York: CBI Publishing Company, Inc., 1981.

Finally, if your body needs salt, you will crave it.

CHAPTER III

VITAMINS: FACTS AND MYTHS

Do you take daily vitamins? Do you sporadically take vitamins?

Do you need to take vitamins? Do you have a problem?

The recommended daily vitamin allowances are:

<u>Vitamin</u>	<u>Unit</u>	<u>Infants</u> <u>(0-12 mo.)</u>	<u>Children</u> <u>(under 4)</u>	<u>Adults and</u> <u>children 4</u> <u>or more yrs.</u>	<u>Pregnant or</u> <u>Lactating</u> <u>women</u>
A	IU	1500	2500	5000	8000
D	IU	400	400	400	400
E	IU	5	10	30	30
C	mg	35	40	60	60
Folacin	mg	0.1	0.2	0.4	0.6
Thiamine (B ₁)	mg	0.5	0.7	1.5	1.7
Riboflavin (B ₂)	mg	0.6	0.8	1.7	2.0
Niacin	mg	6	9	20	20
Vitamin B ₆	mg	0.4	0.7	2	2.5
Vitamin B ₁₂	mcg	2	3	6	6
Biotin	mg	0.05	0.15	0.3	0.3
Pantothenic Acid	mg	3	5	10	10

IU = International Unit

mg = milligram

mcg = microgram

The U.S. RDA system was developed by FDA for its nutrition labeling and dietary supplement programs. This table for use in the labeling of dietary supplement lists only vitamin requirements, for the purpose of this paper.

If you are eating a nutritionally sound diet, you should be receiving all of your daily required vitamins and minerals. By consuming a variety of wholesome foods you receive excessive amounts of vitamins. For example, one six oz. glass of orange juice provides 100 percent of the recommended daily allowance for Vitamin C. In

1200 to 1500 calories from dairy products, fruits, vegetables, grains and protein foods, you satisfy your vitamin requirements.

On the other hand, the wrong people are often taking vitamins and minerals. Many people have the wrong impression about vitamins. In reality, vitamins are simply chemicals the body needs in minute quantities to function properly. Like motor oil in a car, vitamins will not make the body run any faster, but without them the body will stop dead.

Moreover, people who are presumably healthy and have no diseases are popping large amounts of vitamins and minerals to try to give them that extra edge. However, research is showing that for healthy individuals, vitamins don't confer any advantages but do have distinct risks.

Taking very large doses of vitamins varies greatly depending on the type of vitamins a person takes. The daily multivitamins are not likely to do any harm although they usually do not do much good either. Vitamin C and certain B vitamins are also relatively harmless because the body easily rids itself of what it does not need.

Not only are vitamin supplements worthless, but they can conceivably prove harmful. The fat-soluble vitamins (A, D, E, and K) provided by the multivitamin capsule cannot be excreted in the urine and are instead stored in body fat, principally in the liver. Over a significant period of time, this build-up of excess vitamins can produce serious toxic effects, particularly through an accumulation of vitamins A and D.³

Below is a list of vitamins showing their sources, physiological functions, deficiency symptoms and overdose symptoms.

Vitamins	U.S. RDA for Adults and Children over four	Some Signifi- cant Sources	Some Major Physiolog- ical Func- tions	Some Defi- ciency Symptoms	Some Overcon- sumption Symptoms
<p>Fat-Soluble Vitamins</p> <p>Vitamin A (retinol, provitamin carotenoids)</p>	5000 IU	<p>Retinol: liver, butter, whole milk, cheese, egg yolk. Pro-vitamin A: carrots, leafy green vegetables, sweet potatoes, pumpkin, winter squash, apricots, cantaloupe fortified margarine.</p>	<p>Assists formation and maintenance of skin and mucous membranes, thus increasing resistance to infections. Functions in visual processes and forms visual purple. Promotes bone and tooth development.</p>	<p>Mild: night blindness, diarrhea, intestinal infections, impaired growth.</p> <p>Severe: xerophthalmia.</p>	<p>Mild: nausea, irritability, blurred vision.</p> <p>Severe: growth retardation, enlargement of liver and spleen, loss of hair, rheumatic pain, increased pressure in skull, dermal changes.</p>
Vitamin D (calciferol)	400 IU	<p>Vitamin D fortified dairy products; fortified margarine; fish oils; egg yolk. Synthesized by sunlight action on skin.</p>	<p>Promotes ossification of bone and teeth, increases intestinal absorption of calcium.</p>	<p>Rickets in children; osteomalacia in adults, rare.</p>	<p>Mild: nausea, weight loss, irritability.</p> <p>Severe: mental and physical growth retardation, kidney damage, mobilization of calcium from bony tissue and deposition in soft tissues.</p>

Vitamins	U.S. RDA for Adults and Children over four	Some Signifi- cant Sources	Some Major Physiolog- ical Func- tions	Some Defi- ciency Symptoms	Some Overcon- sumption Symptoms
<hr/>					
Fat-Soluble Vitamin					
Vitamin E (tocopherol)	30 IU	Vegetable oil, margarine, shortening; green and leafy vegetables; wheat germ, whole grain products; egg yolk; butter, liver.	Functions as antioxidant protecting vitamins A and C and fatty acids from destruction; and prevents cell-membrane damage.	Almost impossible to produce without starvation; possible anemia in low-birth-weight infants.	Nontoxic under normal conditions.
<hr/>					
Water-Soluble Vitamins					
Vitamin C (ascorbic acid)	60 mg	Broccoli, sweet and hot peppers, collards, brussels sprouts, strawberries, orange, kale, grapefruit, papaya, potato, mango, tangerine, spinach, tomato.	Forms cementing substances, such as collagen, that hold body cells together, thus strengthening blood vessels, hastening healing of wounds and bones and increasing resistance to infection. Aids in use of iron.	Mild: bruise easily, bleeding gums. Severe: scurvy	When megadose is discontinued, deficiency symptoms may briefly appear until the body adapts. Newborns whose mothers took megadoses will show deficiency symptoms after birth until the body adapts.

Vitamins	U.S. RDA for Adults and Children over four	Some Signifi- cant Sources	Some Major Physiolog- ical Func- tions	Some Defi- ciency Symptoms	Some Overcon- sumption Symptoms
Thiamin (vitamin B ₁)	1.5 mg	Pork, liver, meat; whole grains, forti- fied grain pro- ducts; legumes; nuts.	Functions as part of a co- enzyme to pro- mote carbohy- drate meta- bolism, pro- duction of ribose, a con- stituent of DNA and RNA. Promotes nor- mal appetite and normal functioning of nervous system.	Impaired growth, wast- ing of tis- sues, mental confusion, low morale, edema. Severe: beriberi	None reported.
Riboflavin (vitamin B ₂)	1.7 mg	Liver; milk, yogurt, cot- tage cheese, meat; forti- fied grain products.	Functions as part of a co- enzyme assis- ting cells to use oxygen for the release of energy from food. Promotes good vision and healthy skin.	Lesions of cornea, cracks at corners of mouth.	None reported.
Niacin (nicotina- mide, nico- tinic acid)	20 mg	Liver, meat, poultry, fish; peanuts; for- tified grain products. Syn- thesized from tryptophan (on the average 1 mg of niacin from 60 mg of dietary trypto- phan).	Functions as part of a co- enzyme in fat synthesis, tissue respi- ration, and utilization of carbohy- drate for en- ergy. Pro- motes healthy skin, nerves and digestive tract. Aids digestion and fosters nor- mal appetite.	Skin and gastrointes- tinal les- ions, anor- exia, weak- ness, irri- tability, vertigo. Severe: pellagra	None reported for nico- tinamide. Flushing, headache, cramps, nausea for nico- tinic acid.

Vitamins	U.S. RDA for Adults and Children over four	Some Signifi- cant Sources	Some Major Physiolog- ical Func- tions	Some Defi- ciency Symptoms	Some Overcon- sumption Symptoms
Folacin (folic acid)	0.4 mg	Liver; le- gumes; green leafy vege- tables	Functions as part of co- enzymes in amino acid and nucleo- protein me- tabolism. Promotes red blood cell formation.	Red tongue, diarrhea, anemia.	May obscure the exis- tence of pernicious anemia.
Vitamin B ₆ (pyridoxine, pyridoxal, pyridoxa- mine)	2.0 mg	Meat, poul- try, fish, shellfish; green and leafy vege- tables; whole grains, legumes.	Functions as part of a coenzyme in- volved in protein me- tabolism, assists in conversion of trypto- phan to ni- acin, fatty acid meta- bolism, and red blood cell forma- tion.	Irritability, muscle twitching, dermatitis near eyes, kidney stones, hy- pochromic anemia.	None reported.
Vitamin B ₁₂	6.0 mcg	Meat, poul- try, fish, shellfish; eggs; milk and milk products.	Functions in coenzymes involved in nucleic acid synthesis and biolog- ical methy- lation. Assists in development of normal red blood cells and maintenance of nerve tissue.	Severe: pernicious anemia, neurolog- ical dis- orders.	None reported.

Vitamins	U.S. RDA for Adults and Children over four	Some Signifi- cant Sources	Some Major Physiolog- ical Func- tions	Some Defi- ciency Symptoms	Some Overcon- sumption Symptoms
Biotin	0.3 mg	Kidney, liver; milk; egg yolk; most fresh vege- tables.	Functions as part of a coenzyme involved in fat synthe- sis, amino acid meta- bolism, and glycogen formation.	Fatigue, depression, nausea, dermatitis, muscular pains.	None reported.
Pantothenic Acid	10 mg	Liver, kid- ney, meats; milk; egg yolk; whole grains; legumes.	Functions as part of a coenzyme involved in energy meta- bolism.	Rare because found in most foods. Fatigue, sleep dis- turbances, nausea.	None reported.

Source: United States Recommended Daily Allowances (U.S. RDA), devised by the Food and Drug Administration are standards for nutrition labeling.

Remember vitamin supplementation is often abused by healthy adults under the misconception that if a little is good, more will be better. A diet providing no more than 1200 to 1500 calories, if properly selected from traditional American foods, will provide all vitamins anybody needs.

CHAPTER IV

CAFFEINE

Do you need that morning cup of coffee or tea to get your engine started? Do you consume caffeine containing soft drinks on a daily basis? Do you have a problem?

The recommended maximum daily dose of caffeine is 250 milligrams. Most of us drink an excessive amount of caffeinated beverages. Research studies indicate that your morning cup of coffee is okay. However, more than two to three cups may lead to nervousness and restless sleep. Besides, it constricts blood vessels which can be a factor in causing high blood pressure.

Furthermore, caffeine is not directly associated with heart disease. However, coffee combined with cigarettes results in higher incidence of cardiovascular problems. In addition, drinking coffee or tea with meals interferes with absorption of thiamin by 75 percent and iron by 90 percent.

Below is a list of common beverages with their caffeine content:

<u>Beverage</u>	<u>mg. caffeine/5 oz. cup</u>
Coffee:	
Drip	150
Percolated	110
Instant	65
Decaffeinated	5
Tea:	
5 min. brew	45
1 min. brew	30
Cocoa	15

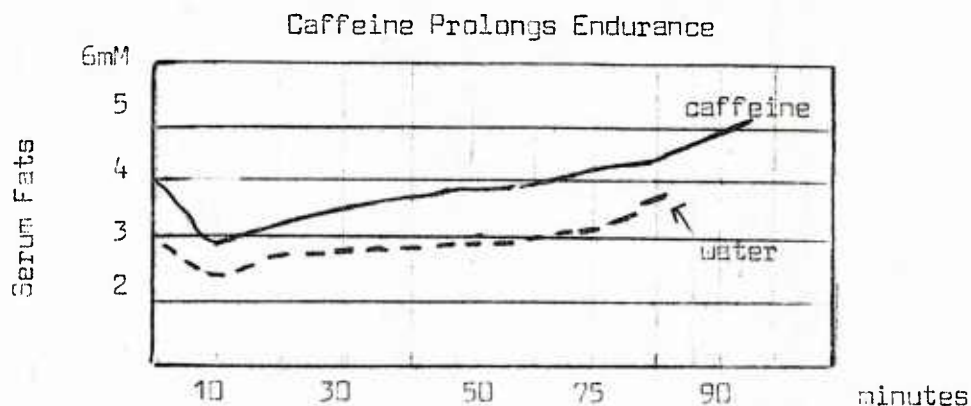
<u>Beverage</u>	<u>mg./12 oz. can</u>
Coke	65
Pepsi	45
Sweet chocolate bar (1 oz.)	23

can of coke for small child = 2 cups coffee for adult

Source: Sunker, M.L. and McWilliams, M. "Caffeine Content of Common Beverages," Journal American Dietetic Association (74:28), 1979.

On the other hand, caffeine may improve exercise capacity for marathon runners and endurance athletes. Research studies by David Costill showed that caffeine prolongs endurance. In this study, the subjects drank two cups of coffee (330 mg. caffeine) one hour before strenuous exercise. They worked for 15 minutes longer than when tested without caffeine.

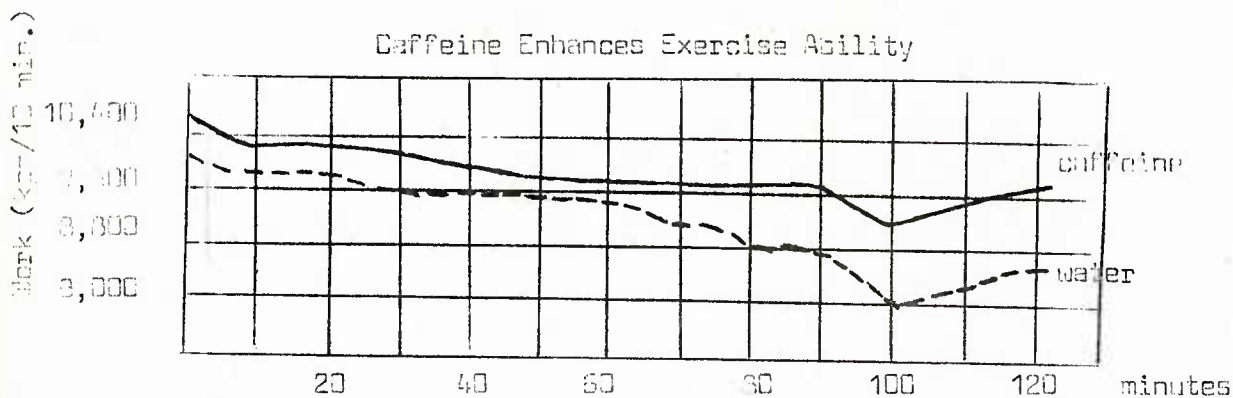
See chart:



Source: Costill, D. "Effects of Caffeine Ingestion on Metabolism and Exercise Performance." Med. Science Sports 10:155-156, 1978.

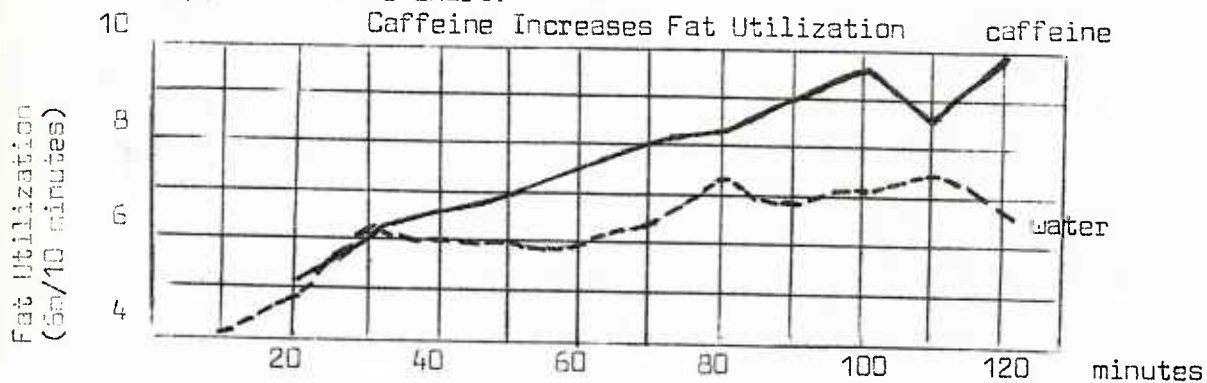
In a second study, the subjects took 250 mg. caffeine both before and during exercise. During the two hour period, the subjects cycled 7 percent harder when they took the caffeine, but perceived the effort as being the same.⁴

See chart:



Source: Costill, D., "Influence of Caffeine and Carbohydrate Feedings on Endurance Performance," Med. Science Sports 11:6, 1979.

More important, one should bear in mind that caffeine is not totally safe for the athlete. Remember that two cups of coffee is sufficient for a 150 pound person. The athlete still needs to be concerned with caffeine overdose which can result from consuming three to four mugs of coffee before competition. Besides, the positive effect from caffeine is not its stimulant effect but rather caffeine reduces the rate at which glycogen is burned. The caffeine causes more fats to be available for your muscles to burn. Therefore, you are able to exercise longer before the glycogen is totally depleted.⁵ See chart:



Source: Ivy, J. et al., "Influences of Caffeine and Carbohydrate Feedings on Endurance Performance." Med. Science Sports 11:6, 1979.

CHAPTER V

FAT IS FATTENING

Do you use whole milk? Do you use regular salad dressing? Do you eat red meats more than twice a week? Do you eat cheese more than twice a week? Do you have a problem?

The recommended fat allowance in your diet is no more than 30 percent of total calories, with less than 10 percent being saturated, up to 10 percent polysaturated and the remainder monounsaturated.

The Air War College Class of 1985 is no different than the typical American. We are consuming too much fat. In the population at large, fat has increased from 30 percent daily calories in 1900 to approximately 45 percent today.

While some fat is essential for transporting fat-soluble vitamins in the body, the type and amount of fat you consume can decrease or increase your chances of heart disease. For instance, excessive amounts of saturated fat in the diet tend to increase the level of cholesterol. Polyunsaturated fat helps reduce cholesterol. Monounsaturated fat has been thought to have had a neutral effect on cholesterol, neither raising or lowering it. However, recent evidence suggests that it may lower cholesterol. Bear in mind that monounsaturated fat has the same calorie count as saturated fat.

Saturated fats occur naturally in all foods of animal origin, such as butter, cream, whole milk and meat fat. These fats are solid at room temperature. Foods high in saturated fat are high in calories.

So, if you want to lose weight, avoid them.

Polyunsaturated fats are liquid at room temperature. These oils, particularly safflower, sunflower, corn, soy bean and cottonseed oils, produce a cholesterol-lowering effect in the blood when included in the daily eating plan.

Monounsaturated fats are found in olives, olive oil, peanuts, peanut oil, peanut butter, avocados and most nuts. All types of fats provide a concentrated source of calories and so you must use them sparingly.

Although fat is not readily visible, it is present in most prepared, processed and fried foods. Below is a list of fat content in various foods.

<u>Percent Fat</u>	<u>Food</u>
90-100	Salad and cooking oils and fats, lard
80-90	Butter, margarine
70-80	Mayonnaise, pecans, macadamia nuts
50-70	Walnuts, dried unsweetened coconut meat, almonds, bacon, baking chocolate
30-50	Broiled T-bone and porterhouse steaks, spareribs, broiled pork chop, goose, cheddar and cream cheeses, potato chips, French dressing, chocolate candy, buttercream icing
20-30	Choice beef pot roast, broiled choice lamb chops, frankfurters, ground beef, chocolate chip cookies
10-20	Broiled choice round steaks, broiled veal chops, roast turkey, eggs, avocado, olives, chocolate cake with icing, French fried potatoes, ice cream, apple pie

Fat Content Various Foods (continued)

<u>Percent Fat</u>	<u>Food</u>
1-10	Pork and beans, broiled cod, halibut, haddock and many other fish, broiled chicken, crabmeat, cottage cheese, beef liver, milk, creamed soups, sherbert, most breakfast cereals
Less than 1	Baked potato, most vegetables and fruit, egg whites, chicken consomme

Source: Fats, Diets and Your Health. Consumer's Research Magazine. Washington, D.C. October 1983.

If you are interested in cutting down on your fat intake, here are some recommendations:

1. Include more fruits (except avocados and olives), vegetables, breads, cereals, dry beans and dry peas in your meals.
2. Cut down on fatty meats, includes regular ground beef, corned beef, spareribs, sausage and heavily marbled cuts, such as prime rib.
Fish, shellfish, chicken and turkey are generally lower in fat content.
Use leaner cuts of meat including
 Beef - flank, round, rump
 Lamb - leg, loin
 Veal - all cuts
 Pork cuts - such as lean ham, loin, Boston butt and picnic are moderate in fat content.
3. When selecting meat, always choose lean cuts with a minimum amount of marbling. "Prime" beef contains the most fat, followed by "choice," "good," "standard" and "utility." All visible fat should be trimmed before cooking.
4. Meats, poultry and fish may be baked, broiled, roasted, stewed or boiled. All meat drippings should be discarded. Meat or poultry skins should not be eaten.
5. Restrict use of luncheon rolls or loaves and "variety" meats (i.e. sausage, hot dogs, etc.) to occasional treats.

6. Limit use of nuts, peanuts and peanut butter which contain considerable amounts of fat.
7. Reduce the use of whole milk and whole-milk products, such as most cheeses and ice cream, in favor of skim or low fat milks and their products, such as uncreamed cottage cheese.

Source: MCP 160-29 March 1961. U.S. Dietary Goals and a Prudent Diet for Americans.

It is recommended that you eat no more than six ounces of meat daily. The meat allowance includes fish, poultry, shellfish, beef, pork and lamb. Poultry, fish and shellfish (except shrimp) are lower in saturated fat than beef, lamb, and pork, and therefore should be selected as the meat allowance more often. Shellfish are low in cholesterol and fats, and can be eaten as desired.

CHAPTER VI

CHOLESTEROL

Do you eat more than three egg yolks per week? Do you eat cheese daily? Do you load everything with butter? Do you have a problem?

The recommended daily cholesterol intake is 300 milligrams. Cholesterol is a wax-like substance that the body requires. It's a part of all cell walls. In addition, Vitamin A and some hormones are made from it. Your body makes all the cholesterol it needs. Therefore, a diet high in cholesterol definitely has adverse effects. High blood cholesterol causes heart disease to progress faster by settling in the walls of the arteries. This process is called atherosclerosis or hardening and/or narrowing of the arteries. Atherosclerosis can result in heart attacks or strokes.

Cholesterol occurs naturally only in foods of animal origin, but is not always related to fat content of the food. Removing fat doesn't mean you are reducing the cholesterol. Below is a list of approximate amounts of cholesterol in servings of selected foods:

<u>Food</u>	<u>Amount</u>	<u>Cholesterol</u> milligrams
milk, skim, fluid or reconstituted dry	1 cup	5
cottage cheese, uncreamed	½ cup	7
lard	1 tablespoon	12
cream, light table	1 fluid ounce	20
cottage cheese, creamed	½ cup	24
cream, half and half	¼ cup	26
ice cream, regular, approximately 10% fat	½ cup	27

Cholesterol Content of Common Measures of Selected Foods (con't)

<u>Food</u>	<u>Amount</u>	<u>Cholesterol</u> milligrams
cheese, cheddar	1 ounce	28
milk, whole	1 cup	34
butter	1 tablespoon	35
oysters, salmon	3 ounces, cooked	40
clams, halibut, tuna	3 ounces, cooked	55
chicken, turkey, light meat	3 ounces, cooked	67
beef, pork, lobster, chicken, turkey, dark meat	3 ounces, cooked	75
lamb, veal, crab	3 ounces, cooked	85
shrimp	3 ounces, cooked	130
heart, beef	3 ounces, cooked	230
egg	1 yolk or 1 egg	250
liver, beef, calf, hog, lamb	3 ounces, cooked	370
kidney	3 ounces, cooked	680
brains	3 ounces, raw	>1700

Source: "Cholesterol Content of Foods," R.M. Feeley, P.E. Criner and B.K. Watt. Journal American Dietetic Association, 61:134, 1972.

General guidelines to control the intake of cholesterol are:

1. Limit egg yolks to three per week, including those used in cooking and baking.
2. Limit use of shrimp, organ meats and cheese. Two ounces may be substituted for one egg yolk.
3. Use vegetable oils and soft margarines that are rich in polyunsaturated fats (safflower, sunflower, corn, cottonseed or soybean oil) in place of butter and other cooking fats that are solid or hydrogenated.

4. Use skimmed milk and skimmed-milk cheeses in place of those made with whole milk.
5. Select desserts from the following: fruit, gelatins, skim-milk puddings, sherberts, water ice, angel food cake, or desserts specially prepared with polyunsaturated fat.
6. Emphasize use of vegetables, fruits and whole-grain products.

Research indicates that an unhealthy diet can contribute to the development of heart disease. It is estimated that if all Americans reduced their blood cholesterol levels by 25 percent, the incidence of coronary heart disease in the U.S. would drop by 50 percent. The end result is in your hands!

CHAPTER VII

MEALTIME: THE HEART OF THE MATTER

Breakfast/Fasting

The Air War College Class of 1985 is no different than the typical American. We eat the typical American breakfast which is NO breakfast. Breakfast is an important meal of the day. Eating food for fuel for daytime activities is more sensible than eating food for sleep at night. Breakfast eaters feel better physically and mentally. The abstainers more readily succumb to the mid-morning droop and purchase the nutritionally empty but calorie-loaded donuts and pastries to fill the hunger gap.

If you are one of those who prefer an additional 20 minutes of sleep, you can still consume a quick and easy breakfast. Cold cereals are good sources of B-vitamins and iron if you can find the words "fortified" or "enriched" printed on the label. Beware of the so-called "natural" cereals which generally have no additives such as vitamins or iron. Wiser choices are "enriched" whole grain cereals such as Raisin Bran, Oat Flakes and Wheat Chex. Of course, there are hot cereals. One recommendation is cooking hot cereal with milk rather than water for more nutritional value. Add fresh or dried fruits or top with applesauce, cinnamon, yogurt, or cottage cheese for a taste change.⁶

For those individuals who do not like breakfast foods, be creative and try nonbreakfast foods such as: English muffin pizza, tuna, grilled cheese or peanut butter sandwich, or leftovers from the night before.

Then there is always the eat-on-the-run breakfast. If you exercise in the morning, you may not be hungry by the time you have to leave for work. If you know that you won't have, make, or take the time in the morning, pack breakfast the night before. It is then ready for you to grab on your way out the door; then enjoy it on your drive or walk to work. Some examples are: piece of cheese, yogurt, banana, bagel with lowfat cottage cheese or with peanut butter, peanut butter crackers, or Syrian bread with sliced cheese. The important thing is to be creative and eat something.

By skipping meals, you place yourself into a position of fasting. The body is stressed when it is deprived of food and will try to lay down extra fat for the emergency. The basic fact is that fasting will encourage your body to become fatter.

This phenomenon was demonstrated in a study on rats. Both groups of rats were given exactly the same quantity of food. Group A (nibblers) could eat the food all day long; Group B (one Big Mealers) were allowed only a one-half hour feeding to consume all the food. The amount of food was low enough that both groups lost about the same amount of weight. At the end of the study, the rats were allowed to return to their normal amount of food and were allowed to eat all day long. Both groups gained weight. However, the one-mealers gained more. Even though the one-mealers were losing weight because of low calorie intake, their bodies were preparing for the stress period (no food) by laying down extra fat. What this means is that if you have to diet, don't make the mistake of fasting or eating just one meal a

day (essentially a 23 hour fast). Spread those calories out over the day in five to six small meals. Otherwise, you are setting your body up for a heavy fat gain the minute you go off the diet.⁷

Lunch

Does your lunch consist of a bologna sandwich on white bread with a bag of chips and diet soda? Does your lunch consist of a candy bar and coffee? Do you skip lunch? Do you grab the first thing out of the vending machine? Do you have a problem?

If your only option for lunch is from the vending machine, then be selective and choose food items that contain vitamins, minerals and protein. Such examples would be: peanuts, cheese and crackers, peanut butter crackers, juice, milk, granola bar or fig bar.

On the other hand, the brown bag lunch most likely provides you with your best options since you can pick and choose wisely the contents. However, if you are saying to yourself "I am too rushed to prepare lunch in the morning" then prepare it the night before. You can even make several sandwiches at one time and freeze them. By the time lunch rolls around, the sandwich will be thawed and fresh. Just use common sense when freezing. For example, sliced meats, cheese, margarine and mustard freeze well while eggs, mayonnaise, jelly, lettuce, tomatoes or raw vegetables don't; they will only guarantee you a "soggy" sandwich.

You can always add variety to your sandwiches by substituting different breads such as cracked wheat, honey, rye, pumpernickel, bagel, English muffin, pocket bread and so on. If you are watching

your calories, then remember it is the filling and spread that have the calories and not the bread. In this case hold the mayonnaise in the tuna fish, butter in the grilled cheese and bacon in the BLT.⁸

Of course, there are numerous creative ideas that you can come up with rather than a sandwich for lunch. For examples, take peanut butter spread on bran muffin or crackers, or sliced cheese with green peppers or tomatoes. Take your sandwich filling separately and enjoy it with crackers or bread sticks for a change.

During cool weather, you can fill a thermos with soup, chili, or chowder. During warm weather, you can pack yogurt, fresh fruit cup, or various salad ideas.

If you have that burning desire for a dessert, then pack fresh fruit, yogurt, raisins, dates, apricots, oatmeal cookies, fig bars, granola bars or graham crackers. Also, use variety with your beverages such as lowfat milk, juice, hot cocoa or herbal tea.

Once again, the important thing is to eat something for lunch. You should watch the calorie content especially if your main meal is consumed in the evening. If you find yourself eating lunch out at fast food restaurants, officer's club or other restaurants, refer to dinner meal where eating out is addressed.

Dinner: Eating Out/Fast Foods

Do you find yourself eating out more than four times weekly? Do you find yourself frequently in a fast food restaurant? Do you find yourself at several cocktail parties each week? Do you find

yourself invited out to friends on a weekly basis? Do you have a problem?

Eating out is definitely a way of life and a growing trend in America. Our very traditions always seem to focus around food whether one is celebrating a wedding, promotion, birthday, or fare-well. The list could go on and on. The Air War College executive group is no different. Your various jobs involve numerous social obligations which usually revolve around food.

Restaurants

Dining out is certainly a gourmet delight but you need to be aware of the "waist-ful" happening. This is extremely important if you find yourself in that category who eats out frequently each week. The key to success is to plan carefully and plan ahead.

First of all, there is no law that says you must eat it all! Most restaurants serve too much food; indeed, a doggie bag is an acceptable request. Besides, you can get two meals for the price of one! Perhaps, even more important, you need to discard the "conditioned practice" that was instilled during early childhood - - eat everything on your plate.

Some helpful suggestions to control what and how much you eat are:

1. Pick broth-based soups such as minestrone or chicken. Beware of the saturated fats and calories that are found in chowders and cream soups.
2. Select chicken, turkey or fish that has been broiled, baked or boiled and served without sauces.

3. Request salad dressing on the side. You can then control the amount used.
4. Select vegetables without sauces.
5. Eat the bread/roll without butter.
6. Ask for fresh fruit for dessert.
7. If you want a glass of wine, skip the appetizer, roll, or dessert.

Dinner/Cocktail Party

First of all, eat something before going to the party. Do not expect yourself to maintain control when you are hungry. At the party, be selective when choosing your nibbles. Select items such as fresh vegetables, low calorie beverages or plain popcorn.

At a dinner party, eat small amounts of the rich foods and fill up on vegetables and salad. When the hostess starts serving generous portions of a rich dessert, explain that you have eaten too much and want to limit dessert to "just coffee."

When it comes to buffet tables laden with food, stop! Take a step backward and survey the table first. Decide exactly what you will eat and have small servings. You should definitely avoid "grazing" beside the buffet table.

If you find yourself sitting next to a bowl of peanuts, move either yourself or the peanuts to the other side of the room. On the other hand, if the hostess keeps pushing drinks, politely refuse. You can do this by slowly sipping your drink or after one alcoholic beverage switch to club soda, diet soda, tomato juice or water with a wedge of lemon. Of course, you can always say, "I'm skipping this round."

Traveling

Since most Air War College executives will find themselves on numerous temporary duties, it is most likely the hardest time for any diet. The thing one has to remember is that your body is never on vacation. Since wining and dining may be a very important part of your job, you may need to keep a diary of your eating locations. Always beware of what you are eating because it is sure to show up.

Many restaurants are aware of traveling problems, so look for the one that can meet your needs. For most people eating out is a treat and they can afford to splurge on their calories once in a while. But when you have to eat many meals a week out, you had better learn some tricks. Beware of the "dieter's special," such as ground sirloin, cottage cheese and tomato slices. This low calorie dinner adds up to 730 calories and 70 percent fat. Don't look at the menu, order broiled, steamed, poached or grilled fish with lemon juice. Order all your dishes dry - - avoid sauces, salad dressings, mayonnaise and butter. If you must order them, have them brought on the side so you can control what is added. You should avoid menu items, such as dipped in butter, fried, creamed, or in a sauce.

Fast Foods

Most likely you may find yourself frequently at a fast food restaurant. When the occasion arises, you must be selective in the type of food you eat. You can avoid the fried fish, french fries, shake and apple pie which are loaded with fat, sugar and empty calories. Today, many fast food restaurants have a salad bar, just watch the dressing. In addition, many have a variety of food groups such as

a cheeseburger with lettuce and tomato along with a can of juice. The major problem is that if you are not selective you can easily chow down half of your daily calorie requirement. The really painful part is that if you are a two mile jogger, you'll have to increase your mileage to 10 the next day to burn up the calories. Basically, fast foods typically lack fiber, vitamins A and C and they are high in fats and salt. Below is a list of nutritional analysis on fast foods:

	<u>Portion Size</u>	<u>Protein (Gms)</u>	<u>Carbohy- drate (Gms)</u>	<u>Fat (Gms)</u>	<u>Calories</u>
Dairy Queen					
Big Brazier Deluxe		28	36	24	470
Big Brazier Regular		27	37	23	457
Big Brazier w/cheese		32	38	30	553
Brazier w/cheese		18	30	14	315
Brazier Cheese Dog		15	24	19	330
Brazier Chili Dog		13	25	20	330
Brazier Dog		11	23	15	273
Brazier French Fries		2	25	10	200
Brazier Onion Rings		6	33	17	300
Brazier Regular		13	28	9	260
Fish Sandwich		20	41	17	400
Fish Sandwich w/cheese		24	39	21	440
Super Brazier		53	35	48	783
Super Brazier Dog		20	41	30	518
Super Brazier Dog w/cheese		26	43	36	593
Super Brazier Chili Dog		23	42	33	555
Banana Split		10	91	15	540
Buster Bar		10	37	22	390
DQ Chocolate Dipped Cone	Sm	3	20	7	150
	Med	7	40	13	300
	Lg	10	58	20	450
DQ Chocolate Malt	Sm	10	51	11	340
	Med	15	89	20	600
	Lg	22	125	28	840
DQ Chocolate Sundae	Sm	4	30	4	170
	Med	6	53	7	300
	Lg	9	71	9	400
DQ Cone	Sm	3	18	3	110
	Med	6	35	7	230
	Lg	10	52	10	340

Dairy Queen (continued)	Portion Size	Protein (Gms)	Carbony- drate (Gms)	Fat (Gms)	Calories
Dairy Queen Parfait		10	81	11	460
Dilly Bar		4	22	15	240
DQ Float		6	59	8	330
DQ Freeze		11	89	13	520
DQ Sandwich		3	24	4	140
Fiesta Sundae		9	84	22	570
Hot Fudge Brownie Delight		11	83	22	570
Mr. Misty Float		6	85	8	440
Mr. Misty Freeze		10	87	12	500
Kentucky Fried Chicken					
Original Recipe Dinner	3 pc	52	56	46	830
Extra Crispy Dinner	3 pc	52	63	54	950
Individual Pieces					
Original Recipe					
Drumstick		14	2	8	136
Keel		25	6	13	283
Rib		19	8	15	241
Thigh		20	12	19	276
Wing		11	4	10	251
Pieces	9	152	59	116	1892
McDonald's					
Egg McMuffin		18	26	20	352
English Muffin Buttered		6	28	6	186
Hot Cakes, w/Butter & Syrup		8	89	9	472
Sausage (pork)		9	tr	17	184
Scrambled Eggs		12	2	12	162
Big Mac		26	39	31	541
Cheeseburger		16	31	13	306
Filet O Fish		15	34	23	402
French Fries	Sm	3	26	11	211
Hamburger		13	30	9	257
Quarter Pounder		26	33	21	418
Quarter Pounder w/cheese		31	34	29	518
Apple Pie		2	31	19	300
Cherry Pie		2	33	18	298
McDonaldland Cookies		4	45	11	294
Chocolate Shake		11	60	9	364
Strawberry Shake		10	57	9	345
Vanilla Shake		10	52	8	323
Burger Chef					
Big Chef		23	35	34	542
Cheeseburger		14	24	17	304
Double Cheeseburger		24	24	26	435
French Fries		3	25	9	187

	<u>Portion Size</u>	<u>Protein (Gms)</u>	<u>Carbohy- drate (Gms)</u>	<u>Fat (Gms)</u>	<u>Calories</u>
Burger Chef (continued)					
Hamburger, regular		11	24	13	258
Mariner Platter		32	85	24	680
Rancher Platter		30	44	38	640
Shake		11	47	11	326
Skippers Treat		21	47	37	604
Super Chef		29	39	37	600
Burger King					
Cheeseburger		17	29	39	305
Hamburger		14	29	9	252
Whopper		29	51	32	606
French Fries		3	28	10	214
Vanilla Shake		11	50	11	332
Whaler		18	64	46	486
Hot Dog		11	23	17	291
Long John Silver's					
Breaded Oysters	6 pc	14	58	19	460
Chicken Planks	4 pc	27	35	23	458
Breaded Clams	5 oz	13	46	25	465
Cole Slaw		1	16	8	138
Corn on Cob		5	29	4	174
Fish w/Batter	2 pc	19	19	19	318
Fries		4	32	15	477
Hush Puppies	3 pc	1	20	7	225
Ocean Scallops	6 pc	10	27	12	153
Peg Leg w/Batter	5 pc	25	30	33	257
Shrimp w/Batter	6 pc	9	31	13	514
Treasure Chest					
2 pc fish; 2 peg legs	4 pc	25	27	29	467
Pizza Hut					
Thin 'n Crispy (½ 10" pizza)					
Beef		29	51	19	490
Pork		27	51	23	520
Cheese		25	54	15	450
Pepperoni		23	45	17	430
Supreme		27	51	21	510
Thick 'n Chewy (½ 10" pizza)					
Beef		38	73	20	620
Pork		36	71	23	640
Cheese		34	71	14	560
Pepperoni		31	68	18	560
Supreme		36	74	22	640

	<u>Portion Size</u>	<u>Protein (Gms)</u>	<u>Carbohy- drate (Gms)</u>	<u>Fat (Gms)</u>	<u>Calories</u>
Taco Bell					
Bean Burrito		11	48	12	343
Beef Burrito		30	37	21	466
Beef Tostada		19	21	15	291
Bell Beefer		15	23	7	221
Bell Beefer w/cheese		19	23	12	278
Burrito Supreme		21	43	22	457
Combination Burrito		21	43	16	404
Enchirito		25	42	21	554
Pintos 'n Cheese		11	21	5	168
Taco		15	14	8	186
Tostado		9	25	6	179
• Beverages					
Coffee	6 oz	Tr	Tr	Tr	2
Tea	6 oz	Tr	-	Tr	2
Orange Juice	6 oz	1	20	Tr	82
Chocolate Milk	8 oz	9	28	9	213
Skim Milk	8 oz	9	13	Tr	88
Whole Milk	8 oz	9	12	9	159
Coca-Cola	8 oz	0	24	0	96
Fanta Ginger Ale	8 oz	0	21	0	84
Fanta Grape	8 oz	0	29	0	114
Fanta Orange	8 oz	0	30	0	117
Fanta Root Beer	8 oz	0	27	0	103
Mr. Pibb	8 oz	0	25	0	93
Mr. Pibb w/o sugar	8 oz	0	Tr	0	1
Sprite	8 oz	0	24	0	95
Sprite w/o sugar	8 oz	0	0	0	3
Tab	8 oz	0	Tr	0	Tr
Fresca	8 oz	0	0	0	2

Source: Ross Laboratories, Dietetic Currents. Vol 15-No. 5, September 1978.

What this all boils down to is your discipline. Each of these situations requires good planning and control. When indulging in excessive calories, you need to increase your exercise. One important reminder is that your body is never on vacation even though you may be. The real test will be whether you can adjust your habits to stay within

your weight control and dietary program while still including special occasions, fast foods, restaurants and traveling. After all, the end result will be a well-maintained weight program.

CHAPTER VIII

SUMMARY

Now, that you have read the specific areas within this paper that affect you, what will you do? Ignore the facts? Initiate changes? Or what? Remember, a change in diet need not involve a drastic change in eating habits. For example, the fat content within the diet can be significantly reduced by simply substituting lowfat milk for whole milk, or ice milk for ice cream, or by trimming the fat from meat before cooking and selecting leaner cuts of meat. This does not require you to become compulsive about your eating habits; but a few relatively simple changes in the types of food products can make a significant difference.

The bottom line is that the only way you can change is to make the decision yourself. It must come from inside and no one can get inside you, except you. No doctor, dietitian or psychiatrist can change you in spite of their prescriptions of special diets or the obvious wisdom of their advice. Entering your dietary habits into a computer won't work either. The only thing that works is analyzing your own diet. To do this you must forget the diet books and the big promises. You must do your own dietary analysis and then act!!

NOTES

1. Bailey, Covert, The Fit or Fat Target Diet. (Boston: Houghton Mifflin Company, 1984), p. 105.
2. Bailey, Covert, The Fit or Fat Target Diet. (Boston: Houghton Mifflin Company, 1984), p. 105.
3. Smith, Nathan, Food for Sport. (Palo Alto: Gull Publishing Company, 1976), p. 45.
4. Clark, Nancy, The Athlete's Kitchen. (New York: CBI Publishing Company, Inc., 1983), p. 271.
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6. Clark, Nancy, The Athlete's Kitchen. (New York: CBI Publishing Company, Inc., 1983), pp. 46-48.
7. Bailey, Covert, Fit or Fat? (Boston: Houghton Mifflin Company, 1978), p. 81.
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